

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Markham et al.	Confirmation No. 8326
Serial No. 09/913,970	Group Art Unit: 1636
Filed: March 28, 2002	Examiner: Daniel M. Sullivan
For: LATENCY-ASSOCIATED REGULATORY REGION	
FROM HERPESVIRUS SAIMIRI HVS	

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Declaration of Alexander Fred Markham Under 37 C.F.R. §1.132**

Sir:

I, Alexander Fred Markham, Ph.D., DSc, MBBS, DM do hereby declare and say as follows:

1. I received a BSc and PhD from the University of Birmingham. I completed post-doctoral assignments in Japan and at Imperial College, followed by eight years in industry with G D Searle and I.C.I. (now AstraZeneca). I received a Bachelors of Medicine and Surgery from St Mary's Hospital Medical School, London and have worked in clinical medicine in the University Medical Schools of Oxford, Cambridge and Harvard. I have over 332 scientific publications and am a named inventor of 34 patent applications. I am currently Chief Executive of Cancer Research UK, the largest cancer research non-governmental funding body in the world. A *curriculum vitae* is attached herewith at Tab 1. I am a co-inventor on the above-identified patent application.

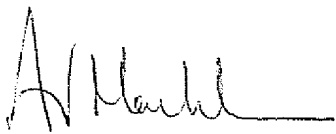
2. I have reviewed the Office Action dated March 2, 2006 in the above-identified patent application and am familiar with the contents thereof.

3. Concerning the present application, we noted on page 17 of the present application that the primers used in the PCR procedure were designed so that the final products contained *HindIII* and *SalI* restriction sites at their 5' and 3' termini, respectively. PCR was performed using these primers and

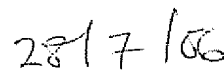
Herpesvirus Saimiri DNA. The product generated was digested with *HindIII* and *SaI* I to generate a DNA fragment with a *HindIII* cohesive end and *SaI* I cohesive end at its 5' and 3' ends respectively. This was cloned into the polylinker site of the plasmid pEGFP after the plasmid had itself been digested with *HindIII* and *SaI* I restriction enzymes. This process means that the PCR fragment is inserted upstream of the pEGFP gene in the plasmid in the correct orientation to act as a promoter sequence to drive heterologous expression of this gene. The positioning was chosen in recognition of the unidirectional functioning of promoters.

Accordingly, as would be understood by one of skill in the art, the primers employed in the application provided the fragments of SEQ ID NO:1 as recited in the pending claims of the present application.

4. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Alexander Fred Markham, Ph.D, MBBS.



Date

## *CURRICULUM VITAE*

**Name:** ALEXANDER FRED MARKHAM

**Date of Birth:** 30 November 1950

**Place of Birth:** Ashton-under-Lyne, ENGLAND

**Qualifications:** Clinical: MB BS, DM, FRCP, FRCPath, FMedSci.  
Scientific: BSc, PhD, DSc, C Chem, FRSC.

### **Affiliations/Professional Experience**

**1968 - 1971** BSc in Chemistry, University of Birmingham.

**1971 - 1974** PhD in Organic Chemistry, University of Birmingham.  
Supervisor: Professor A S Jones

**1992** DSc in Chemistry, University of Birmingham.

**1974 - 1976** Royal Society Research Fellow  
Osaka University, Osaka, Japan, with Professor M Ikehara

**1976 - 1977** Cancer Research Campaign Research Fellow  
Imperial College of Science and Technology  
University of London with Professor Sir Derek Barton FRS, NL.

**1977 - 1979** G D Searle Pharmaceuticals, High Wycombe, Bucks.

**1979 - 1985** ICI Pharmaceuticals, Macclesfield, Cheshire.

**1980 - 1986** MBBS, Foulkes Foundation Fellow  
St Mary's Hospital Medical School, University of London.

**1986 - 1991** Research Manager/Medical Director,  
Zeneca (ICI) Diagnostics, Northwich, Cheshire.  
Zeneca (ICI) Pharmaceuticals, Macclesfield, Cheshire.  
Visiting Professor, St. Mary's Hospital Medical School, London

**1991 - 1993** Nuffield Department of Clinical Medicine,  
John Radcliffe Hospital, Oxford, OX3 9DU.

**1993 – Date** Professor of Medicine, University of Leeds.

**2003-Date** Chief Executive, Cancer Research UK.

## **Visiting Research**

- 1978, 1979                      MRC Laboratory of Molecular Biology, Hills Road,  
Cambridge, CB2 2QH.  
Collaboration with Drs R Sheppard and M J Gait.
- 1982, 1984                      Harvard University Medical School  
The Children's Hospital Medical Centre  
300 Longwood Avenue, Boston, MA 02115, USA.  
Collaboration with Professor S H Orkin.

## **Present Appointments**

Chief Executive, Cancer Research UK.  
West Riding Professor of Medicine, University of Leeds  
Honorary Consultant Physician, The Leeds Teaching Hospitals NHS Trust  
Director, Molecular Medicine Unit, University of Leeds.

## **Additional Information**

General Medical Council Registration Number 3066166  
Date of Full Registration: 11th August 1986.  
Medical Insurance: Medical Defence Union 08/194929A  
USA Medical Qualification: ECFMG Certification Number: 401-065-8  
Fellow of the Royal College of Physicians, London.  
Fellow of the Royal College of Pathologists.  
Fellow of the Royal Society of Chemistry.  
Fellow of the Academy of Medical Sciences.

## **Professional Societies**

- Association of Physicians of Great Britain and Ireland
- Association of Clinical Professors of Medicine
- Royal College of Physicians
- Royal College of Pathologists
- Royal Society of Chemistry
- American Society of Human Genetics
- American Association for Cancer Research
- American Society of Clinical Oncology
- European Society of Human Genetics
- British Society of Gastroenterology
- British Society of Human Genetics
- Academy of Medical Sciences

## **Administrative Responsibilities**

### **Medical Research Council**

- \* MRC Training and Career Development Board Member 2000-2003.
- \* MRC Clinical Training and Career Development Panel Chairman 1999-2002.
- \* MRC Clinical Training and Career Development Panel Member 1994 - 1998.
- \* MRC Scientific Advisory Committee Member 1997 – 2003..
- \* MRC Molecular and Cellular Medicine Board Grants Committee B Member 1993 - 1997.
- \* MRC Special Training Fellowships Panel for Health Services Research Member 1995 - 1997.
- \* MRC “Realising Our Potential Awards” (ROPA) Panel Member 1995 -1997.
- \* MRC/Wellcome Human Embryo Banking/Human Developmental Biology Resource Working Party, Chairman 1996 – 2004.
- \* MRC Animal Embryo Banking Working Party, Chairman 1996 - 2004.
- \* MRC/ECACC Cell Bank Working Party Member 1996 -2004.
- \* MRC Joint Research Equipment Initiative Panel Member 1998. Chairman 1999 – 2004.
- \* MRC ALSPAC Co-operative Group Member 1999 – 2004.
- \* MRC Advisory Committee on Scientific Advances in Genetics (ACSAG) which impact on the Health Service & Society, Member 2000 - 2003.
- \* MRC National Stem Cell Bank Advisory Committee Member 2001-2003.
- \* MRC “Clinical Applications of Advances in Human Genetics” Co-operative Group, Principal Investigator 2001-2006.
- \* MRC Predoctoral Fellowships Panel Chairman 2002 - 2004.
- \* MRC/BBSRC/AMRC Stem Cell Fellowships Panel Chairman 2003 – date.

### **Wellcome Trust**

- \* Wellcome Trust Molecular and Cell Panel Chairman 2003-2004
- \* Wellcome Trust Molecular and Cell Panel Deputy Chairman 2002-2003
- \* Wellcome Trust Molecular and Cell Panel Member 2000 –2002.
- \* Wellcome Trust Equipment Working Party Member 1996 - 1999.
- \* Wellcome Trust Infrastructure Panel Member 1997-1999.
- \* Wellcome Trust/Health Research Board, Republic of Ireland “New Blood” Fellowships in Medical Science, Panel Chairman 1998 - 2002.
- \* Wellcome Trust/Irish Health Research Board : Equipment Awards Panel Member 2000 – date.
- \* Wellcome Trust Innovation Awards Committee Member 1998-date.
- \* Wellcome Trust/Joint Infrastructure Fund, Leeds Centre for Biomolecular Interactions, Investigator 2001-2006.
- \* Wellcome Trust/Strategic Research Infrastructure Fund, “Leeds Institute of Molecular Medicine”, Principal Applicant 2001-2006.

## UK Government

- \* National Cancer Research Institute: Chairman 2003-2005.
- \* UK Clinical Research Collaboration: Board Member 2004-date.
- \* UK National Institute for Health Research: Advisory Board Member 2006-date.
- \* Department of Health: Advisory Group on the Operation of NHS Research Ethics Committees 2004-2005.
- \* Department of Health: Expert Scientific Group on Phase I Clinical Trials 2006.
- \* NCRI Cancer Informatics Steering Committee: Chairman 2003-date.
- \* Department of Health : National Clinician Scientist Award Scheme Panel : Chairman 2001-2003. (Department of Health and Higher Education Funding Council for England Awards)
- \* Department of Health : Gene Therapy Advisory Committee : Member 2000 – 2006.
- \* Department of Health: Committee on Safety of Medicines, Biologicals Sub-Committee, 2002-2006.
- \* Department of Health: Advisory Group for Genetics Research.
- \* EPSRC Metrology for Life Sciences Assessment Panel Member 2000–2004.
- \* EPSRC Engineering Responsive Mode Advisory Panel for Healthcare : Member 2002-2004.
- \* Office of Science and Technology, Technology Foresight Programme: Health and Life Sciences Sector Panel Member 1993-96; Panel Member 1999-2000.
- \* NHS Central Research and Development Committee (CRDC) Standing Group on Health Technology: Population Screening Advisory Panel Member. 1994-date
- \* National Health Service Central Research and Development Committee (CRDC), Department of Health: National Expert Advisory Group on Genetics, Member. 1992-94.
- \* Department of Health: Advisory Committee on Dangerous Pathogens ad hoc Committee on Gene Therapy, 1997.
- \* Northern and Yorkshire Regional Health Authority: Biomedical Research Working Group Member. 1995-98.
- \* Yorkshire Regional Health Authority: Member of Expert Working Group for the YRHA Locally Organised Research Scheme and the YRHA Clinical Advances Fund Programme. 1992-95.

## Other Organisations

- \* American Association for Cancer Research International Affairs Committee Member 2004-date
- \* The International Union Against Cancer (UICC): Member of the Board of Directors 2006-date.
- \* Scientific Advisory Committee Member, Yorkshire Cancer Research Campaign. 1992-2000.
- \* Scientific Advisory Committee Member, Northwest Cancer Research. 1999-2001.
- \* Research and Development Director, St James's University Hospital Trust. 1995-1997
- \* University of Leeds: School of Medicine Research Director. 1998-2001.
- \* University of Leeds Medical School Executive : Member. 1998–2001.
- \* University of Leeds Head of Department : 1993 – 2003.
- \* University of Leeds: Member of Court. 2003-2005.
- \* University of Leeds, Member of Senate. 2003-2006.
- \* Examiner, Royal College of Pathologists.
- \* Examiner: MB BS and BMedSci University of Oxford; University of London; University College, Dublin; PhD, to most UK Universities.
- \* Grant Peer Reviewer for all major medical charities.
- \* Quarterly Journal of Medicine : Editorial Board Member.
- \* Gene Screen: Editorial Board Member.
- \* Foulkes Foundation: Scientific Advisory Board Member (1992-date).
- \* Trustee: Candlelighter's Trust, Yorkshire Children's Cancer Charity (1992-date).
- \* Trustee: Institute for Cancer Research, London 2003-2005.
- \* Clatterbridge Hospital, Liverpool: Scientific Advisory Committee Member (1994-date).
- \* ALSPAC (Avon Longitudinal Study of Pregnancy and Childhood) Genetics Advisory Committee Member (1996-2001).

- \* Scientific Advisory Board Member, Weatherall Institute of Molecular Medicine, Oxford (1999-date).
- \* International Advisory Committee Member, Conway Institute of Biomolecular and Biomedical Research, University and Trinity College Dublin and Royal College of Surgeons of Ireland (2001-date).
- \* International Advisory Board Member, BBSRC/MRC/EPSRC UK Centre for Tissue Engineering (2001-date).

### **Commercial Experience**

- \* 8 years experience as a Research Scientist/Team Leader in GD Searle Pharmaceuticals then ICI (now AstraZeneca) Pharmaceuticals.
- \* 5 years line and project management responsibilities for groups of 50 plus R&D scientists in pharmaceutical and diagnostics businesses in a number of disease areas and including USA commercial and scientific management experience. Broad experience in patenting/ intellectual property matters. Numerous granted patents.
- \* Executive responsibilities for an ICI (now AstraZeneca) Business Unit. Internal medical director role. Experience in identification and evaluation of companies for acquisition and joint venturing as a member of cross-functional negotiating teams.
- \* Products developed: Zeneca/Cellmark Diagnostics' DNA Fingerprinting and Genetic Testing business worldwide. Appointed by the Home Secretary under the Family Law Reform Act, 1969, as a registered blood tester for DNA Fingerprinting. Queen's Award for Technological Achievement 1990. Project Manager 1989-1991 who established the AstraZeneca research group which developed the anticancer drug Irissa.
- \* Director and Chief Executive (1995-2002) of a University of Leeds Biotechnology Start-Up Company, Molecular Solutions Limited. Led business through two rounds of financing.
- \* Director, Bioscience Venture Capital Trust, (2001 – 2005).
- \* Scientific Advisory Board Member, Oxagen Plc (2000-2004).

### **Peer-Reviewed Research Grant Income**

- \* See Appendix.



## **GENERAL REFEREES**

Professor Sir A. G. Wilson,  
Vice-Chancellor,  
University of Leeds,  
Leeds, LS2 9JT

Professor Sir A. J. Jeffreys, FRS  
Department of Genetics, University of Leicester  
Leicester, LE1 7RH

Sir Tom F. W. McKillop  
Chairman, Astra/Zeneca Pharmaceuticals  
Alderley Park, Macclesfield, Cheshire, SK10 4TG

Mr. D. Johnson,  
Chief Executive,  
Leeds Teaching Hospitals NHS Trust,  
St. James's University Hospital,  
Leeds, LS9 7TF

Professor S. V. Ley, FRS  
University Chemical Laboratory  
University of Cambridge  
Lensfield Road, Cambridge, CB2 1EW

## **CLINICAL REFEREES**

Professor Sir David Weatherall, FRCP FRS  
Regius Professor of Clinical Medicine  
John Radcliffe Hospital, Oxford, OX3 9DU

Professor J. Hermon-Taylor, FRCS  
Department of Surgery  
St George's Hospital Medical School,  
Tooting, London, SW17 0RE

Professor B. Vogelstein  
The Johns Hopkins Oncology Center  
424 North Bond Street  
Baltimore, MD21231, USA

Professor S. H. Orkin  
Harvard University Medical School  
The Children's Hospital Medical Centre  
300 Longwood Avenue  
Boston, MA02115, USA

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University of Leeds  
Clinical Sciences Building  
St James's University Hospital  
Leeds LS9 7TF

Telephone: 0113 206 5681

Fax: 0113 244 4475

Email [a.f.markham@leeds.ac.uk](mailto:a.f.markham@leeds.ac.uk)

**PhD Students (non-clinical)**

R.A. Porter	Imperial College London	1981
W.M. Colledge	N.I.M.R. London (CNAA)	1984
C.R. Newton	Brunel University	1986
A. Bailey	Leeds University	1996
S. E. Anderson	" "	1996
A. Norris	" "	1997
J. M. Askham	" "	1997
H. C. Ardley	" "	1997
D. A. Robinson	" "	1997
J. P. Leek	" "	1998
I.M. Carr	" "	1998
M.A. Calderwood	" "	1998
F. Syed	" "	1998
K. Pinchin	" "	1999
D. Goodwin	" "	1999
N. R. Smith	" "	2000
A. Middleton	" "	2000
E. Barnes	" "	2000
M. Houseman	" "	2001
S. Gonagle	" "	2001
W.K. Lam	" "	2002
L. M. Moynihan	" "	2002
C. Lynex	" "	2003

**PhD Students (Clinical Research Training Fellows)**

R. Harun	Leeds University	1997
A.J. Churchill	" "	1998
A.H. Mansur	" "	1998
N.S. Brindle	" "	1999
A.P. Booth	" "	1999
M.A. Aldersley	" "	1999
K.A. Southern	" "	1999
D.P. McHale	" "	2000
R.C.A. Macadam	" "	2000
A.P. Jackson	" "	2000
B.H. Maraj	" "	2000
J.P. Hamlin	" "	2001
Y.J. Crow	" "	2001
A.R. Craig	" "	2001
M. Karayi (MD)	" "	2002
R. Achuthan	" "	2002
E. S. Ward	" "	2002
K.S. Chapple	" "	2002
A.W. Morgan	" "	2002
P. Moncur	" "	2002
M.S. Giles	" "	2002
P. Komolmit	" "	2002
F.T. Leong	" "	2003
B.S. Ubhi	" "	2003
G.A. Follows	" "	2003
T. Lee	" "	2004
S Uppal	" "	2006

## PUBLICATIONS

1. A Simple Method for the Preparation of "Ribonucleoside Dialdehydes" and Comments on their Structure.  
A. S. Jones, A. F. Markham and R. T. Walker.  
J. Chem. Soc. Perkin 1, 1567-1570 (1976).
2. The Synthesis of Poly (Acrylic Acid Hydrazide) with Poly (Methacrylic Acid Hydrazide) and their Reaction Products with "Ribonucleoside Dialdehydes".  
A.S. Jones, A. F. Markham and R. T. Walker.  
Tetrahedron, 32, 2361-2364 (1976).
3. Synthesis of *E. coli* tRNA<sup>fmet</sup> Fragments.  
E. Ohtsuka, A. F. Markham, S. Tanaka, T. Tanaka, T. Miyake, E. Nakagawa, S. Nishikawa and M. Ikehara.  
Nucleic Acids Research, 2, 77-81 (1976).
4. Recent Progress in the Synthesis of Ribooligonucleotides Related to tRNA.  
E. Ohtsuka, A. F. Markham, S. Nishikawa, S. Tanaka, T. Tanaka, T. Miyake, E. Nakagawa and M. Ikehara.  
in "Synthesis, Structure and Chemistry of Transfer Ribonucleic Acids",  
M. Wiewiorowski ed, Polish Academy of Sciences, Poznan, pp 173-185 (1976).
5. An Approach to the Synthesis of Intermediate Sized Oligoribonucleotides.  
A. F. Markham, T. Miyake, E. Ohtsuka and M. Ikehara.  
Heterocycles, 8, 229-233 (1977).
6. Joining of Synthetic Ribotrinucleotides with Defined Sequences Catalysed by T4 RNA Ligase.  
E. Ohtsuka, S. Nishikawa, R. Fukumoto, S. Tanaka, A. F. Markham, M. Ikehara and M. Sugiura.  
Eur. J. Biochem., 81, 285-291 (1977).
7. Synthesis of Escherichia coli tRNA<sup>fmet</sup> fragments (1-20, 47-77).  
E. Ohtsuka, T. Tanaka, S. Tanaka, A. F. Markham, T. Miyake, E. Nakagawa, S. Nishikawa and M. Ikehara.  
Nucleic Acids Research, 3, 117-121 (1977).
8. Studies on tRNA and Related Compounds XXI. Synthesis and Properties of Guanine Rich Fragments from *E. coli* tRNA<sup>fmet</sup> 5'-end.  
E. Ohtsuka, E. Nakagawa, T. Tanaka, A. F. Markham and M. Ikehara.  
Chem. Pharm. Bull., 26, 2998-3006 (1978).
9. Joining of 3'-Modified Oligonucleotides by T4 RNA Ligase. Synthesis of a Heptadecanucleotide Corresponding to the bases 61-77 from *E. coli* tRNA<sup>fmet</sup>.  
E. Ohtsuka, S. Nishikawa, A. F. Markham, S. Tanaka, T. Miyake, T. Wakabayashi, M. Ikehara and M. Sugiura.  
Biochemistry, 17, 4894-4899 (1978).

10. The Synthesis of Polynucleotides.  
M. Ikehara, E. Ohtsuka and A. F. Markham.  
in "Advances in Carbohydrate Chemistry and Biochemistry", R S Tipton and D Horton eds,  
Academic Press, New York, Vol 36, pp 135-213 (1979).
11. Influence of Terminal 3'-Phosphates or 2', 3'-Cyclic Phosphates on the Conformations of  
Oligoriboadenylates, Oligoribocytidylates and the Corresponding Monomers.  
A. F. Markham, S. Uesugi, E. Ohtsuka and M. Ikehara.  
Biochemistry, 18, 4936-4942 (1979).
12. Studies on tRNA and Related Compounds XXVII. Linear and Cyclic Oligonucleotides  
Obtained by Polymerisation of Protected Ribonucleoside 3'-Phosphates.  
A. F. Markham, E. Nakagawa, E. Ohtsuka and M. Ikehara.  
Chem. Pharm. Bull., 27, 2988-2996 (1979).
13. Rapid Chemical Synthesis and Circular Dichroism Properties of Some 2'-5'-linked  
Oligoriboadenylates.  
A. F. Markham, R. A. Porter, M. J. Gait, R. C. Sheppard and I. M. Kerr.  
Nucleic Acids Research, 6, 2569-2582 (1979).
14. Synthesis of the Nascent Strand of tRNA<sup>fmet</sup> from *E. coli*.  
E. Ohtsuka, T. Tanaka, S. Tanaka, K. Fujiyama, A. F. Markham, E. Nakagawa,  
T. Wakabayashi, Y. Taniyama, S. Nishikawa, R. Fukumoto, H. Uemura, T. Doi and  
M. Ikehara.  
Nucleic Acids Research, 6, 195-198 (1979).
15. Synthesis of Total Fragments of tRNA<sup>fmet</sup> from *E. coli*.  
E. Ohtsuka, S. Tanaka, S. Nishikawa, T. Miyake, T. Tanaka, E. Nakagawa, T. Wakabayashi,  
A. F. Markham, J. Antkowiak and M. Ikehara.  
in "Nucleosides, Nucleotides and their Biological Applications",  
J-L Barascut and J-L Imbach eds, Colloq de l'INSERM, 81, 195-206 (1979).
16. Studies on tRNA and Related Compounds XXVI. Circular Dichroism Properties of Cyclic  
Oligoribonucleotides and their Linear Counterparts.  
A. F. Markham, E. Nakagawa, E. Ohtsuka and M. Ikehara.  
Biopolymers, 19, 285-296 (1980).
17. Studies on tRNA and Related Compounds XXXIV. Stepwise Diester or Partial Triester  
Synthesis of Penta- to Octanucleotides Corresponding to Residues 41-46, 47-54, 61-65 and 66-  
71 of tRNA<sup>fmet</sup> of *E. coli*.  
E. Ohtsuka, T. Miyake, A. F. Markham, E. Nakagawa and M. Ikehara.  
Chem. Pharm. Bull., 28, 2450-2459 (1980).
18. Synthesis of tRNA<sup>fmet</sup> from *E. coli*.  
M. Ikehara, E. Ohtsuka, S. Tanaka, S. Nishikawa, T. Tanaka, T. Miyake, E. Nakagawa,  
T. Wakabayashi, R. Fukumoto, H. Uemura, Y. Taniyama, T. Doi, A. F. Markham and  
J. Antkowiak.  
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W. J. Stec ed, Pergamon Press, New York, pp 33-45 (1980).

19. Rapid Synthesis of Oligodeoxyribonucleotides IV. Improved Solid Phase Synthesis of Oligodeoxyribonucleotides through Phosphotriester Intermediates.  
M. J. Gait, M. Singh, R. C. Sheppard, M. D. Edge, A. R. Greene, G. R. Heathcliffe, T. C. Atkinson, C. R. Newton and A. F. Markham.  
Nucleic Acids Research, 8, 1081-1096 (1980).
20. Total Synthesis of tRNA<sup>fmet</sup>.  
E. Ohtsuka, A. F. Markham, S. Tanaka, T. Tanaka, T. Miyake, E. Nakagawa, T. Wakabayashi, Y. Taniyama, K. Fujiyama, S. Nishikawa, R. Fukumoto, H. Uemura, T. Doi, T. Tokunaga and M. Ikehara.  
Nucleic Acids Research, 7, 335-343 (1980).
21. Solid Phase Phosphotriester Synthesis of Large Oligodeoxyribonucleotides on a Polyamide Support.  
A. F. Markham, M. D. Edge, T. C. Atkinson, A. R. Greene, G. R. Heathcliffe, C. R. Newton and D. B. Scanlon.  
Nucleic Acids Research, 8, 5193-5205 (1980).
22. Total Synthesis of a Human Leukocyte Interferon Gene.  
M. D. Edge, A. R. Greene, G. R. Heathcliffe, P. A. Meacock, W. Schuch, D. B. Scanlon, T. C. Atkinson, C. R. Newton and A. F. Markham.  
Nature, 292, 756-762 (1981).
23. Total Synthesis of a RNA Molecule with sequence identical to that of *Escherichia coli* formylmethionine tRNA..  
E. Ohtsuka, S. Tanaka, T. Tanaka, T. Miyake, A. F. Markham, E. Nakagawa, T. Wakabayashi, Y. Taniyama, S. Nishikawa, R. Fukumoto, H. Uemura, T. Doi, T. Tokunaga and M. Ikehara.  
Proc. Natl. Acad. Sci. USA, 78, 5493-5497 (1981).
24. Applications of Oligonucleotide Synthesis to Interferon Research.  
M. D. Edge and A. F. Markham.  
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25. Isolation of cDNA clones for the Human complement protein Factor B, a class III major histocompatibility complex gene product.  
D. E. Woods, A. F. Markham, A. T. Ricker, G. Goldberger and H. R. Colten.  
Proc. Natl. Acad. Sci. USA, 79, 5661-5665 (1982).
26. Synthesis of some 5'-Amino-2' , 5'-Dideoxy-5-Iodouridine Derivatives and their Antiviral Properties against Herpes Simplex Virus.  
A.F. Markham, C.R. Newton, R.A. Porter and I.S. Sim.  
Antiviral Research, 2, 319-330 (1982).
27. The construction of a synthetic *Escherichia coli* Trp promoter and its use in the expression of a synthetic interferon gene.  
J.D. Windass, C.R. Newton, J. de Maeyer-Guignard, V.E. Moore, A.F. Markham and M.D. Edge.  
Nucleic Acids Research, 10, 6639-6657 (1982).

28. Ion-exchange High Performance Liquid Chromatography of Oligodeoxyribonucleotides using Formamide.  
C.R. Newton, A.R. Greene, G.R. Heathcliffe, T.C. Atkinson, D. Holland, A.F. Markham and M.D. Edge.  
Analytical Biochemistry, 129, 22-30 (1983).
29. Isolation and DNA sequence of a full length cDNA clone for human X-chromosome encoded phosphoglycerate kinase.  
A.M. Michelson, A.F. Markham and S.H. Orkin.  
Proc. Natl. Acad. Sci. USA, 80, 472-476 (1983).
30. Anti-Oxazolone Hybridomas and the Structure of the Oxazolone Idiotypic.  
M. Kaartinen, G.M. Griffiths, P.H. Hamlyn, A.F. Markham, K. Karjalainen, J.L.T. Pelkonen, O. Makela and C. Milstein.  
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31. Direct detection of the common Mediterranean  $\beta$ -Thalassemia gene with synthetic DNA Probes; an alternative approach for prenatal diagnosis.  
S.H. Orkin, A.F. Markham and H.H. Kazazian.  
J. Clin. Invest., 71, 775-779 (1983).
32. Dynamics of cruciform extrusion in supercoiled DNA : Use of a synthetic inverted repeat to study conformational populations.  
D.M.J. Lilley and A.F. Markham.  
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33. The molecular basis of transformation by polyoma virus middle-T.  
A.E. Smith, S.A. Courtneidge, B.A. Oostra, B.K. Ely, R. Harvey and A.F. Markham.  
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34. Isolation of Human C-Reactive Protein cDNA and localisation of the Gene to Chromosome 1.  
A.S. Whitehead, G.A.P. Bruns, A.F. Markham, H.R. Colten and D.E Woods.  
Science, 221, 69-71 (1983).
35. Isolation of a cDNA clone for Human Antithrombin III.  
E.V. Prochownik, A.F. Markham and S.H. Orkin.  
J. Biol. Chem., 258, 8389-8394 (1983).
36. mRNA sequences define an unusually restricted IgG response to 2-phenyl oxazolone and its early diversification.  
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